

MILK PRICING

by

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BACKGROUND

Dairy Industry Brief

Every day of the year, milk is produced on 300,000 dairy farms throughout the United States. Every other day, it is picked up at the farm by tank trucks, most of which are controlled by dairy farmer cooperatives, and moved to one of 1,600 fluid-milk bottling plants or 3,000 dairy product manufacturing plants.

Every step of the way, the milk is handled under sanitary conditions to guard against bacterial contamination. The milk is moved quickly, for it is a highly perishable commodity that must either be marketed promptly as fluid milk or processed into manufactured products, which can be stored.

Milk production fluctuates seasonally—generally expanding during the spring and early summer and contracting in the fall and winter—making it necessary to coordinate a varying supply with a fairly constant demand.

There are two kinds of milk—fluid-grade and manufacturing-grade. Fluid-grade milk meets strict sanitary standards for use as fluid milk. Manufacturing-grade milk, on the other hand, meets somewhat lower standards, which are acceptable because the milk undergoes processing at high temperatures for a longer period of time than in pasteurization of fluid milk. Fluid milk undergoes a shorter heat treatment so that fresh milk will not have a “cooked” flavor.

In the early days of commercial milk production, most milk was manufacturing grade. However, today, only one-fourth of all milk does not meet the standards for fluid use, even though more milk may eventually wind up in manufactured products.

How the Pricing System Evolved

Almost from the very beginning of commercial milk production after the Civil War, it was apparent that shortrun instability in prices due to seasonal fluctuations would lead to longrun uncertainty. Great uncertainty on the part of milk producers would drive substantial numbers out of business and lead to wild swings in production and prices.

It also became apparent that flow commodities such as milk could not be efficiently priced by the methods used for crops which are harvested once a year. For example, auctions or daily negotiations between buyer and seller would not work for milk as it did for some other commodities. From the earliest days, therefore, farmers have attempted to organize to bargain with processors over milk prices.

As early as 1900, producers in a number of markets had banded together into cooperative associations to bargain with milk dealers, or handlers, for a flat price for all fluid-grade milk, regardless of use. However, the pressure of reserve supplies—normal to milk production—led to a breakdown of the flat-price plan.

By the 1920's, most major markets had adopted a classified price system, where handlers paid for fluid-grade milk according to the use made of it. The price paid for milk used in manufacturing products was lower than that paid for milk sold as fluid milk, reflecting the greater costs of handling and marketing perishable milk in fluid form. Returns to producers were stabilized in the face of considerable seasonality of production. Differential pricing reflected differences in demand elasticities in the markets for various products and greater costs of producing and marketing milk for fluid use.

However, during the depression of the 1930's, these systems broke down in most markets as demand for milk dropped drastically, and cooperatives could no longer apply classified pricing systems on a marketwide basis. Prices at all levels dropped sharply, and farmers were in great economic distress.

The inherent instability of milk prices and the marketing problems that arose with the depression prompted dairy cooperatives to ask for Government intervention to stabilize milk marketing conditions. As a result, the Agricultural Adjustment Act of 1933 was passed. The act authorized the Secretary of Agriculture to enter into marketing agreements with handlers, processors, and others and to issue licenses to handlers and processors for the purpose of reestablishing the prices of agricultural commodities—including milk—at parity levels. (Parity is the ratio between what farmers get for their milk and their prices of the things they buy, based on an historical period.)

In 1935, Congress replaced the licenses with orders and set more specific standards for handling milk, while retaining parity as the pricing guide. In 1937, however, Congress effectively replaced parity with a standard of determining milk prices in relation to supply and demand conditions.

In the 1930's, the only program to aid dairy farmers was market orders and agreements. In the early days, some attempts were made to use market orders or agreements to assist manufacturing-milk producers, principally producers of milk used for canned evaporated milk.

During World War II, there was a great need for all kinds of food to feed ourselves and our allies. Producers of many products, including milk, were strongly encouraged to increase production through a number of devices. Milk production was encouraged through guaranteed higher prices to producers. Prices to consumers were kept down by paying a subsidy to processors to offset the higher prices they had to pay for milk.

After the war ended, the wartime programs were modified to fit peacetime conditions in the Agricultural Act of 1949. For milk, the present price support program was established. Market orders—applied only to fluid-grade milk after the war—continued under the authority of the Agricultural Marketing Agreement Act of 1937, although there were many changes in the way they were applied as developments greatly changed the way milk was produced, processed, and marketed.

MILK PRICING AT THE PRODUCER LEVEL

Federal Price Supports

The support price is the basic price which undergirds the entire price structure for bulk milk sold by farmers either directly or through cooperatives to processors. The support price is determined annually (or more often, at the Secretary's option) under provisions of the Agricultural Act of 1949 which require that the support price be between 75 and 90 percent of parity. The minimum has been 80 percent since 1973.

The support price is achieved through an offer by USDA's Commodity Credit Corporation to buy butter, nonfat dry milk, and American cheese at specified prices which are designed to return the support price to the farmer. The price support program thus directly provides a floor under the price of milk used to manufacture these dairy products, and indirectly, provides support for all milk.

Within the limits of the law, the Secretary is required to set a support price which will bring forth an adequate supply of milk to meet the needs of American consumers. The fundamental consideration in deciding how much constitutes an "adequate supply" is the amount of surplus, if any, which the Federal Government has acquired as a result of the support program . . . and, more important, what amount is likely to be acquired with prices at various levels between 75 and 90 percent of parity.

The price paid to farmers for manufacturing-grade milk is competitively determined and is free to move above the support level if supply and demand conditions warrant. It does move above the support level in the short-supply season of most years and, at times, even in the flush season. The commonly used measure of the level of manufacturing-grade milk prices in the area where most such milk is produced is the Minnesota-Wisconsin (M-W) price series. The M-W price series has been above the support level since at least 1966 in terms of the annual average (table 1).

Historically and for the present, prices for manufacturing-grade milk in Minnesota and Wisconsin are determined in a market where the forces of competition are able to operate. There are several hun-

Table 1—Selected milk price series

Year	Support price for milk	Minnesota-Wisconsin price	All-market Federal order minimum Class I price	Dealers' average buying price for milk used in Class I products
<i>Dollars per hundredweight for 3.5% butterfat milk</i>				
1966	3.51	3.92	5.55	5.83
1967	3.84	3.99	5.85	6.18
1968	4.05	4.17	6.23	6.49
1969	4.13	4.42	6.50	6.78
1970	4.40	4.66	6.74	6.94
1971	4.71	4.81	6.90	7.12
1972	4.79	5.08	¹ 7.10	7.26
1973	5.20	6.30	¹ 8.03	8.29
1974	6.20	7.06	¹ 9.35	10.01

¹The Class I price in every Federal order market is the "basic formula" price—the Minnesota-Wisconsin (M-W) price for the second preceding month (the preceding month prior to February 1971)—plus a specified differential in each market. The all-market Federal order minimum Class I price has averaged around \$2.10 per hundredweight over the basic formula price every year since 1968. Since changes in the Class I price lag changes in the M-W price, when monthly increases in the M-W price began to escalate in late 1972, differences between the all-market Class I price and the M-W price for the same month began to narrow. When the M-W price began to drop in April 1974, these declines were not reflected in Class I prices until 2 months later and the spread between the all-market Class I price and the M-W price for the same month began to widen.

dred dairy product plants—primarily cheese or butter-powder plants—in the area which actively vie for the farmers' milk. At some time in the future, however, if most of the manufacturing-grade milk producers in this area convert to Grade A production or go out of business, there will no longer be a competitive market here, and other means of pricing will need to be found.

In addition to price supports and competition in the marketplace, the price of manufacturing-grade milk reflects: (1) cost of milk production, (2) alternative employment opportunities—both farm and nonfarm, (3) demand for manufactured-milk products, and (4) indirectly, through its effect on the quantity of milk used, demand for fluid-milk products.

Federal Milk Marketing Orders

What They Do. Federal milk marketing orders set *minimum* prices of raw fluid-grade milk which must be paid by processors to dairy farmers (usually through farmer cooperatives). All other provisions of the orders are subsidiary to the minimum price.

Under the Federal order system, minimum prices are established for milk for fluid (bottling) use and for regulated fluid-grade milk used in manufactured products. Currently, approximately 78 percent of the Nation's milk supply is fluid-grade and about 55 percent of all milk is used for fluid products. And Federal order receipts represent about 62 percent of total milk marketings.

The characteristics of milk production and consumption are such that prices which reflect the supply and demand cannot remain static. Frequent changes are necessary to reflect changing economic conditions. If prices were changed solely on the basis of administrative hearings, serious problems could arise in obtaining timely price adjustments to meet changing market situations. Therefore, prices are changed automatically in response to changing economic conditions. Lengthy administrative procedures are avoided when changing economic conditions are appropriately reflected in milk prices by such methods. Only when these methods do not operate satisfactorily is it necessary to resort to hearings in order to change them.

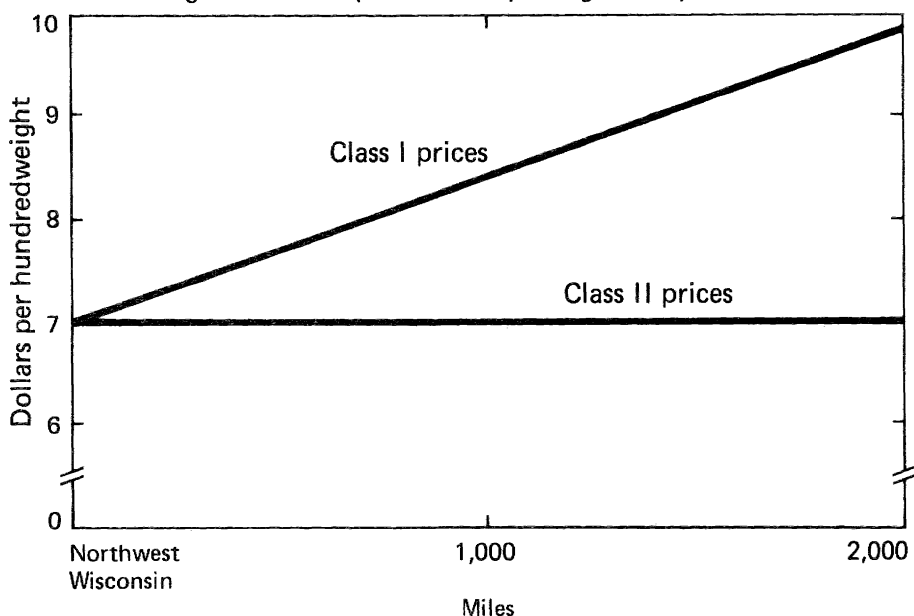
Prices are established for each of the 61 U.S. marketing orders on the basis of specified relationships to the Minnesota-Wisconsin price. With a few minor exceptions, prices for milk used in manufactured products (Class II) are at or near the Minnesota-Wisconsin price base. Prices for milk for fluid use (Class I) are higher by fixed differentials.

The structure of Class I prices conforms fairly closely to what one would anticipate in a competitive market on the basis of economic location theory. From a base point in the Upper Midwest in the heart

of the largest surplus production area (surplus with respect to fluid-milk needs), the prices increase to more distant markets, reflecting transportation costs and local supplies and demands. Roughly speaking, the idea is about like this: The largest supply of milk over and above local needs is in the Upper Midwest. Thus, any market in the United States could be supplied from there at the price in northern Wisconsin plus transportation. So, as long as milk can move freely from one area to another, that price plus transportation then sets the upper limit on prices in any market. If the supply in a market area elsewhere in the country is greater than local needs, the price at that point will be lower than Wisconsin-plus-transportation by an amount large enough to move the milk to a point where it is needed (fig. 1).

The differential between Class I and Class II prices in the 18th zone of the Chicago Federal order—the approximate base point—has been 90 cents per hundredweight since 1968. Class II prices are the same as the Minnesota-Wisconsin prices. Since Class II prices vary relatively little from one market to another across the country (because the demand for manufactured dairy products is national) but Class I prices increase with the distance from the Upper Midwest, the differential between prices for the different classes (uses) of milk would be

Figure 1—A simplified milk-pricing class system



milk going into different uses obviously are intended to and do influence the quantities used, but there are no quantity controls in Federal milk orders.

In earlier years, numerous barriers to movement of milk between areas were erected by sanitary regulations and product specifications of State and local health authorities and other regulations. However, almost all of these have been removed by court and legislative action. Today, Federal orders do not restrict milk movements, although order prices obviously have some effect. Handlers and cooperatives are the ones who control milk movements from farm to processor or from one area to another.

No Federal order limits the quantity of milk produced or marketed. However, Class I (fluid-grade milk), base plans in two markets (Puget Sound and Georgia) place limits on the amount of milk for which an individual producer can receive the Class I price. Although, Class I base plans do not control production or volume marketed, they do influence the distribution of proceeds among farmers.

Authority for Class I base plans was added by legislation in 1965. The original authority provided for fairly restrictive base plans which would have had a considerable effect on discouraging entry by new producers. The Act was amended in 1970 to require that new producers be provided with relatively easy entry, which effectively "pulled the teeth" of the restrictive features of base plans. This is one major reason why only two milk markets have adopted Class I base plans.

WHAT THE MILK PRICING SYSTEM MUST DO

Under the current pricing system, fluid-milk products have the first claim on milk supply since they return the higher price to producers. Semipерishable products, such as ice cream and cottage cheese, which may be made from either local milk supplies or from intermediate products shipped in from surplus areas, are next in line. Hard products such as cheese, butter, and powder, are residual claimants on milk supplies.

The total supply of milk depends on the prices paid to producers of Grade A and manufacturing-grade milk, expected future prices, present and expected costs of producing milk, and alternative farm and off-farm opportunities. The demand for milk and dairy products, in turn, depends on their retail prices, the availability and price of substitute products, consumer income, population growth, and changes in consumer tastes and preferences.

Any milk-pricing system, therefore, must recognize the sum total of forces affecting the national supply and demand for milk and strive to create a balance between supply and demand over time. This requires establishing and maintaining a balance between: (1) the need for prices to producers sufficiently high to maintain production; (2) the willingness and ability of consumers to pay for milk; (3) the public interest in efficient allocation of resources; and (4) the overall interest of producers, handlers, and the public in the orderly flow of products from the producer to the consumer.

Establishing prices at levels higher than needed to assure an adequate supply would cause producers to expand production to the point where milk surpluses become burdensome. Obviously, Government purchases cannot be expanded without limit. (Currently, they run 1 to 2 percent of total supplies and have been as high as 14 percent during the 1960's.) Also, without an effective means of production control, raising prices above the level which balances supply with demand reasonably well becomes self-defeating, for as excess supplies build up, a substantial reduction in price is required to eliminate surpluses. Therefore, a built-in cyclical pattern of production and prices results. For the producer, it provides a boom-or-bust price structure with no assurance of consistently reasonable returns. Also, resource misallocation results as resources move into the industry during expansion and are forced out during periods of contraction.

As serious as the consequences of overpricing sound, the consequences of underpricing could be even more serious. In addition to jeopardizing the supply of milk, the financial structure of the dairy industry could be undermined and the livelihood of many family farm operations threatened. However, if properly utilized, the Federal order and price support programs stabilize prices at a level which provides the producer and his family with a reasonable return on labor, capital, and management, while providing the consumer with the milk he wants.

STATE REGULATIONS

Prices paid to producers for fluid-grade milk are regulated by Federal orders and by 18 States, including New Jersey which regulates producer prices under concurrent regulation with Federal orders which cover the entire State (table 2). Federal orders regulate the prices paid to producers on about 78 percent of the fluid-grade milk sold to plants and dealers, and the States regulate an additional 18 percent. The share under Federal regulation has increased from about one-third in the late 1940's, while that under State regulation has de-

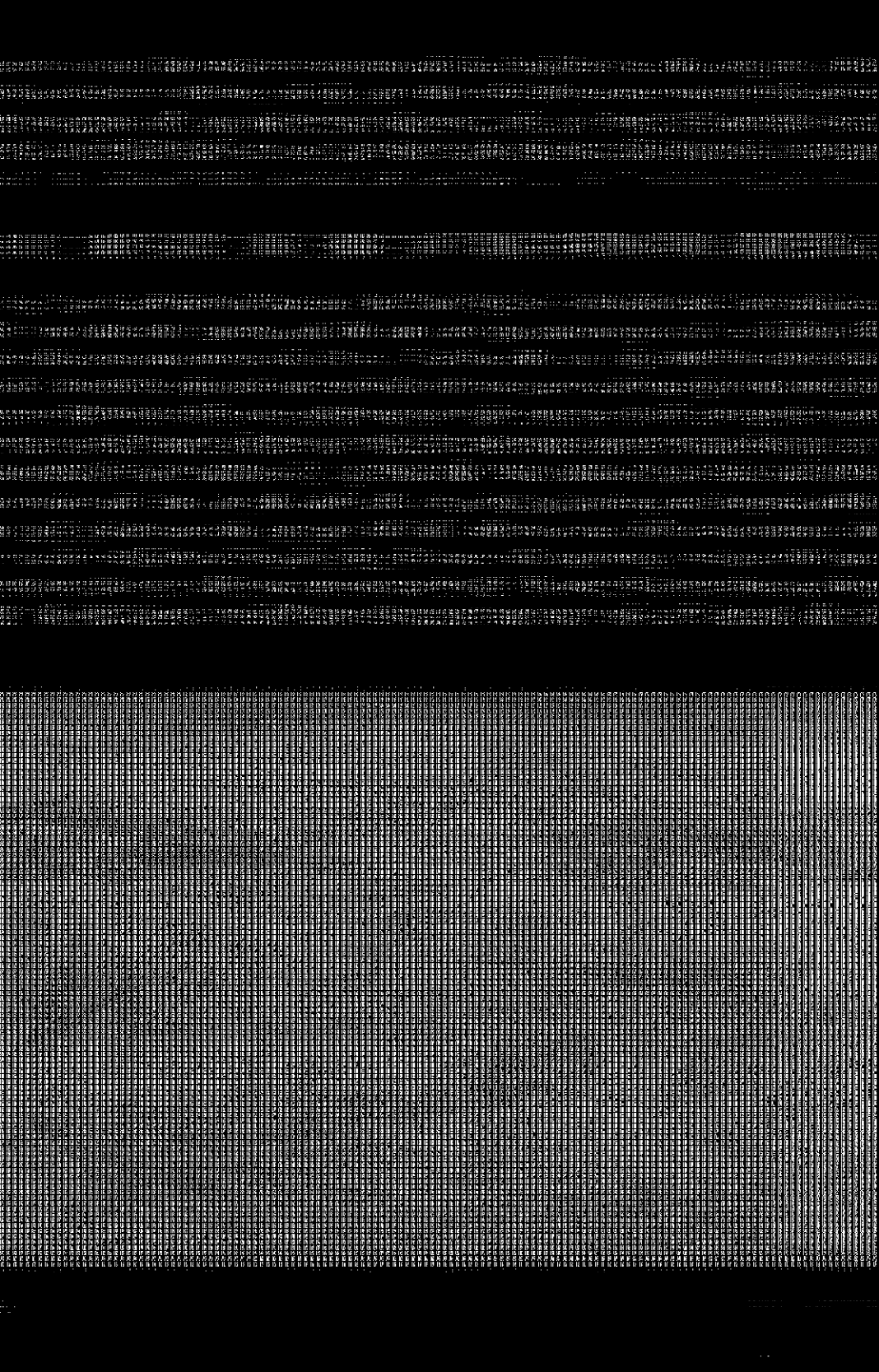


Table 2—States regulating milk prices, December 1974

State	Minimum prices established at—		
	Producer level	Wholesale level	Retail level
Alabama	Y	Y	¹ Y
California	Y	Y	Y
Colorado	Y	N	N
Hawaii	Y	N	N
Louisiana	Y	Y	N
Maine	Y	Y	Y
Massachusetts	Y	(²)	(²)
Montana	Y	Y	Y
Nevada	Y	Y	Y
New Jersey	Y	Y	Y
New York	Y	N	N
North Carolina	Y	(²)	(²)
North Dakota	Y	Y	¹ Y
Oregon	(³)	N	N
Pennsylvania	Y	Y	Y
South Carolina	Y	Y	Y
South Dakota	N	Y	Y
Vermont	Y	Y	Y
Virginia	Y	¹ Y	(⁴)
Washington	(²)	N	N
Wyoming	Y	Y	N

Y = Yes; N = No.

¹ Also establishes maximum prices.

² Authorized but not used.

³ The State's Class I base plan is used to repool Oregon-Washington Federal milk order producer payments if requested by individual Oregon producers.

⁴ Establishes minimum prices only under emergency conditions when price wars threaten to disrupt market conditions. Also establishes maximum prices.

partly because more milk is being sold through supermarkets with a concentration of sales on weekends. The larger the volume under the control of one agency, the more the variations tend to offset one another, both within supply and demand and between the two.

Many handlers have accepted full supply arrangements with a cooperative to reduce the high cost of procuring and coordinating a fluctuating supply to meet a variable demand. Under such an arrangement, the cooperative undertakes to supply the exact needs of the handler for milk for fluid use and perhaps for ice cream and cottage cheese, and also to dispose of the surplus for other uses.

Such full supply arrangements do not eliminate fluctuations, but they do reduce their impact on handlers by giving them a relatively simple, routine means of adjusting supply to demand with minimum effort and expense. Furthermore, a single agency is in a better position

to make necessary adjustments and reduce the burden of uncertainty.

As cooperatives increasingly take over the task of coordinating supply and demand under full supply contracts or similar arrangements, substantial economies of scale can be achieved. Reserve supplies of milk, which must be carried to meet fluctuations, become smaller. Significant savings become possible in the movement of milk—both from the farm and to plants—when one agency is routing the total supply of the market.

Manufacturing supplies of milk not needed for fluid use can be routed into various dairy products much more efficiently under such a system, since receipts of milk are not nearly as variable at a single plant receiving the surplus from an entire market. When each handler attempts to take care of his own surplus, tremendous variations occur from day to day in the volume being manufactured. Total economies in such a centralized supply-coordination and surplus-disposal operation, compared with a system in which each handler manages his own supply and surplus disposal, probably are about 20 to 22 cents per hundredweight. Such potential savings can be shared between cooperative and processors, the proportions depending on the relative bargaining strength of each. The economies are large enough so that both parties can make substantial savings.

Changed bargaining relationships in the procurement market and lower operating costs associated with central supply management have helped create a climate in which cooperatives can bargain for and obtain payments over minimum prices established under the Federal orders. There were over-order payments in almost 90 percent of Federal order markets in early 1975—an increase from 35 percent of the markets in 1964, and 60 percent in 1971.

From the mid-60's to mid-1973, over-order payments (including both premiums and service charges) on Class I milk averaged 20 to 40 cents per hundredweight. Cooperative blend prices paid to producers in markets with such payments were generally close to and sometimes below Federal order minimum blend prices. In these circumstances, the over-order payments covered little more than costs of performing marketing services.

In 1974, over-order payments increased sharply. For 31 cities in Federal order markets, they increased from an average of 33 cents in May to 97 cents in November. This increase was due primarily to the decline in Federal order Class I prices (\$1.86 per hundredweight between May and September) and the effort of the cooperatives to maintain their selling prices. Since then, over-order payments have declined about 25 cents per hundredweight.

IMPORT QUOTAS—SAFEGUARD

Import quotas on dairy products are authorized under Section 22 of the Agricultural Adjustment Act when conditions are such that imports threaten the operation of the dairy price support program. With prices of milk in the United States higher than those in some other countries and supported by the Federal Government, it is obvious that other countries could ship large amounts of dairy products to the United States, and the U.S. Government would, in effect, be subsidizing milk production and processing abroad. Particularly when other countries subsidize their exports, as the European Community does, we could be flooded with cheese, butter, and other products from abroad.

The Economic Research Service recently completed a comprehensive study of the effects of dairy import quotas and of their removal under different conditions.¹ Some of the general conclusions it reached follow.

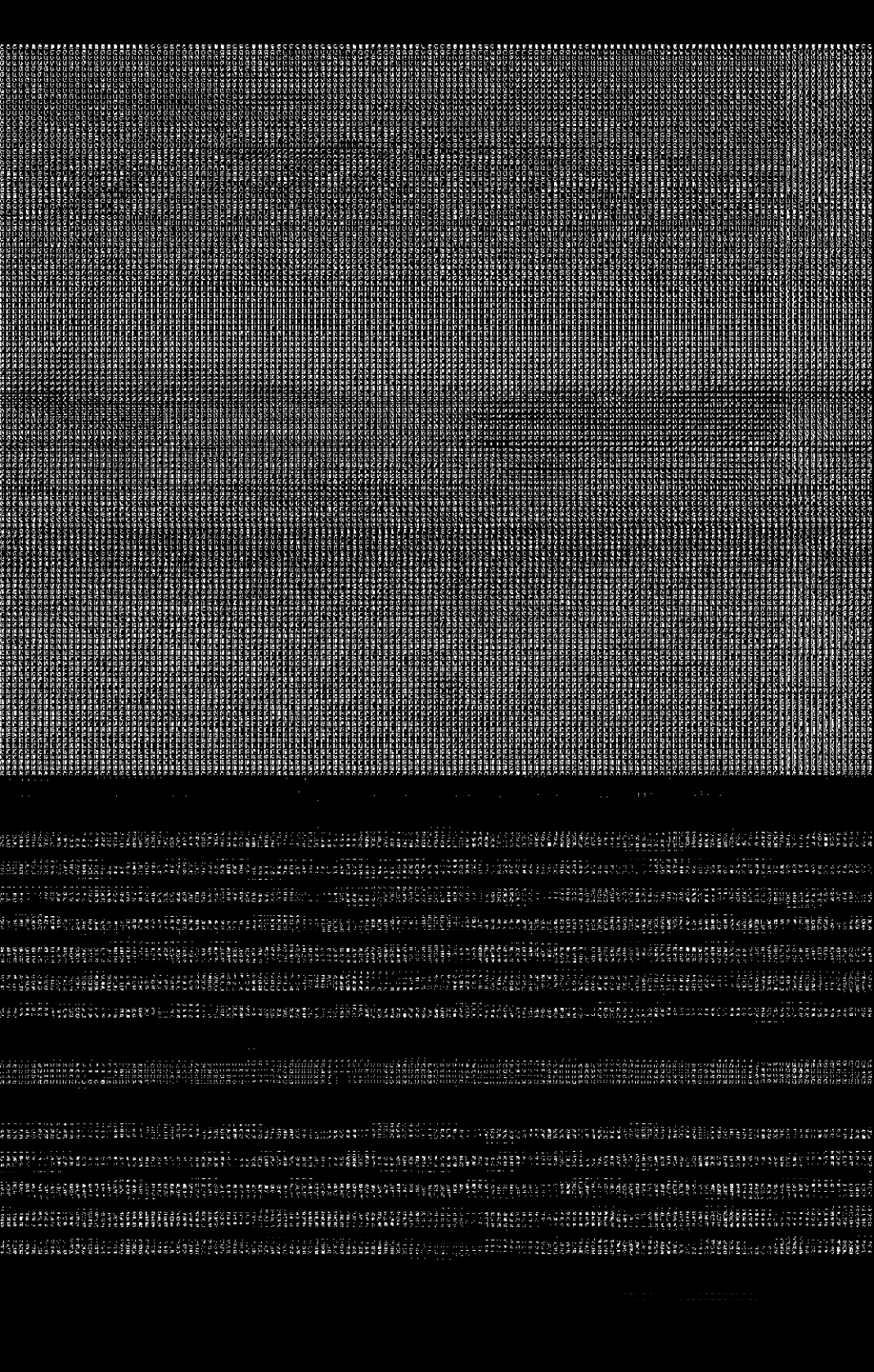
One possibility the study examines is unlimited imports of dairy products. In the short run, throwing the gates open to imports would result in lower prices for dairy products in the United States. But it would also contract the U.S. dairy industry. For the longer run, it could bring about higher prices than we would otherwise have and almost certainly, much more unstable prices.

Even with a policy of expanded imports—as opposed to unlimited—the shortrun tendency would be to lower prices and reduce domestic production. This country would then become increasingly dependent upon imports. If the level of imports remained stable, no serious disruption would be expected in the longer run. However, if imports slumped, a contracted U.S. dairy industry would not be able to fill in the gap in supplies. Resources once taken out of dairying cannot be quickly replaced.

Reliability of foreign supplies, in large part, would depend upon policies followed by the major dairy-producing countries as well as policies followed by this country.

Lower cost dairy products would be available from New Zealand and Australia in limited quantities because the potential for expanding milk production there is relatively small. However, with a large part of their production exported year after year, these countries would be interested in dependable markets. They would ship more dairy prod-

¹*The Impacts of Dairy Imports on the U. S. Dairy Industry*, Econ. Res. Serv., U.S. Dept. of Agr., Ag. Econ. Rpt. No. 278, Jan. 1975, 77 pp.



Nevada, New Jersey, North Dakota, Pennsylvania, South Dakota, and Vermont—regulate both wholesale and retail prices. South Carolina, Wyoming, Louisiana and Virginia regulate wholesale prices only. (Virginia also has the authority to establish minimum retail prices under emergency conditions when price wars threaten to disrupt the market.) In addition, Massachusetts and North Carolina have authority to regulate wholesale and retail prices in an emergency, but have not done so in recent years. They do, however, regulate trade practices under portions of their milk control laws. North Carolina also requires that resale prices be filed with the Milk Commission—which has a very strong stabilizing effect on prices—as part of its trade practice regulation.

While States differ in their regulation of resale prices—some set minimum prices, some maximum prices, and some both minimum and maximum—in every case except New Jersey and Vermont, the effect of regulation is to fix prices. In these two States, as a matter of policy, minimum prices are set at a stop-loss level, and market prices are generally above them.

Another effect of resale price regulation, whether done directly by price setting or more circuitously through trade practice regulation, is to maintain the status quo. Since any change represents a potential competitive threat to someone, there usually is resistance to change. Often the rate of innovation—whether new containers, new services, new products, or changes in a price structure—tends to be slower in areas with such regulation than elsewhere. The nearly universal use of cost figures as justification for changes in wholesale or retail price structures produces a strong tendency toward average-cost pricing. In such a situation, changes in price structures to reflect lower-cost containers or methods of distribution are resisted. Prices tend to be set at levels reflecting average or higher costs of all distributors. In these cases, the distributor whose costs are below average cannot reduce prices to reflect his own costs—thereby removing a strong incentive to lower prices.

The complex price structures which exist in the milk business at both wholesale and retail levels practically defy regulation. Any attempt by a pricing authority to regulate all of the variations would be futile. It is possible to set minimum prices at a stop-loss level, which reflects the lowest costs attainable, and permit the price structure to develop above that through competitive pressures. Whether this is necessary to achieve objectives of public policy is another question.

There are a number of reasons for maintaining resale price control of milk—not the least of which is the desire to retain the backing of handlers for control at the producer level by giving them guaranteed margins. From a public policy standpoint, however, the argument that retail pricing is inherently unstable and frequently leads to destructive price wars is the most important. However, the changing structure of milk marketing and accompanying change in the nature of the pricing process has substantially weakened this argument.

Under the typical milk-marketing system of the 1950's, handlers provided full service to retail stores, including price marking, display case arrangements, and daily delivery. A typical store had from two to a half-dozen brands of milk, each one serviced by a different handler. In practice, prices were effectively determined by the handlers, and the store received a fixed margin. While the handler did not have as absolute control over prices as did a gasoline company in its leased stations, the control was still quite strong. In such a situation, if one handler reduced retail prices, others with milk in the same store were under strong pressure to follow.

In the present market, retailers generally exert a stronger control over pricing. Typically, there is not more than one brand per store in addition to private label, and often there is only private label. Thus, the "passthrough" effect is gone. Under these circumstances, resale price control no longer serves the function it once did.

Most States with resale price-fixing authority—as well as a number of other States—have authority to regulate trade practices. The State trade practice laws usually prohibit all or most of the following: free merchandise, unreasonable extension of credit, secret rebates and discounts, free signs, unearned advertising allowances, loaning of money, free equipment, free repairs and services, sales below cost at the wholesale or retail level, area price discrimination, and purchaser price discrimination. Also, several States require a minimum markup, particularly by retailers, while others require that prices be filed with the State agency.

The potential effects of trade practice regulation are somewhat mixed. Where minimum markups are specified or price filing is required, the tendency is somewhat similar to that of resale price fixing, and prices are likely to be somewhat higher than they would be in the absence of trade practice regulation. However, by prohibiting many forms of nonprice competition, such as those listed above, there is some tendency to force competition more strongly into the price arena.

JUDGING PRICE IMPACTS OF THE PRICING SYSTEM

The impacts of a price structure can only be judged by the effect on supply and demand over a period of time. Supply effects, in particular, take several years to work themselves out. The biological process of production is a long-term one and the responses of producers are relevant primarily as they relate to longrun decisions to increase or decrease herd size or to go out of business. The wisdom of any price decision can only be evaluated at the time it is proposed in terms of anticipated results 2 or 3 years hence—in other words, what will the resulting supply-demand balance be then? Any other criterion, especially one limited to shortrun effects, will be self-defeating.

Impacts of dairy price supports and Federal order actions on the supply-demand balance can be evaluated in terms of Commodity Credit Corporation purchases of surplus dairy products. If the structure of milk prices is too high, surpluses will be generated and acquired by the CCC. On the other hand, if the prices are too low, milk shortages may result.

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